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UNITED STATES DISTRICT COURT  
DISTRICT OF UTAH

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UNITED STATES OF AMERICA,  Plaintiff,  v.  VINT WADE, DONNA WADE, and STEVEN WILLING,  Defendants.	AMENDED NOTICE OF THE UNITED STATES' INTENT TO RELY ON THE EXPERT TESTIMONY OF P. DAVID POLLY  Case No. 4:23-cr-00077-DN-DAO  District Judge David Nuffer
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Pursuant to the Court's Order,<sup>1</sup> the United States hereby files this Amended Notice. Additionally, in compliance with [FED. R. CRIM. 16\(a\)\(1\)\(G\)](#), the United States provides the following disclosure concerning expert testimony that it may offer at trial pursuant to [FED. R. EVID. 702](#), 703, and 705.

The United States submitted a notice and report for Dr. Polly.<sup>2</sup> This amended notice includes notice of additional testimony that Dr. Polly will offer regarding specimens that were

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<sup>1</sup> [Docket no. 138](#), filed June 17, 2024.

<sup>2</sup> [Docket no. 136](#), filed June 15, 2024.

purchased at a gem and mineral show in Arizona and a comparative analysis of XRF and REE testing.

### **QUALIFICATIONS**

Dr. Polly received his B.A. degree in the Plan II Honors program at University of Texas at Austin in 1987, concentrating in paleontology, zoology, and geology. He received his Ph.D. degree in Paleontology in 1993 from the University of California at Berkeley, after which he was a postdoc in the Michigan Society of Fellows at University of Michigan at Ann Arbor from 1994 to 1996.

In 2006, Dr. Polly began at Indiana University Bloomington in the Department of Geological Sciences (now Earth & Atmospheric Sciences) as an Associate Professor and was promoted to full Professor in 2013. He has been chair of his department since 2020. Dr. Polly's research is in multivariate statistical analysis of paleontological and geological problems, the analysis of shape, and the evolution of vertebrates. He teaches courses in quantitative paleontology, geometric morphometrics, vertebrate paleontology, and dinosaurs. He has published peer reviewed scientific articles, three edited books, and five software packages for paleontological and geological data analysis. He is a Fellow of the American Association for the Advancement of Science (AAAS) and served as President of the Society of Vertebrate Paleontology from 2016 to 2018. A more detailed list of his training, education, and professional experience are reflected in an updated curriculum vitae (CV) attached as Ex. A. Dr. Polly's CV was originally produced in discovery as BG-DP-01-00001.

Dr. Polly has not testified as an expert at trial or deposition. Additionally, Dr. Polly's publications over the past ten years are included in his CV. Ex. A.

### SUMMARY OF TESTIMONY

Dr. Polly conducted statistical analysis of x-ray fluorescence (XRF) data collected by Bureau of Land Management staff from fossils collected from control sites in Utah and elsewhere and from the seized fossils that are the subject of this prosecution. XRF data consist of readings of the abundances of 25 chemical elements on the surfaces of the fossils measured. Dr. Polly used the XRF data to develop elemental “fingerprint” characterizations of each control site using a maximum-likelihood statistical approach. He used the likelihood distributions to analyze the seized specimens to determine whether their XRF fingerprints matched those from sites on federal land in Utah and to determine whether the XRF data corroborate the information provided by cooperator(s) about the locations where some seized specimens were collected. His analyses were conducted using the mathematical coding package *Mathematica*© (Wolfram, Inc).

Dr. Polly will testify that some seized specimens have XRF fingerprints that are consistent with having been collected from private land in Utah, but that most are consistent with having been collected from federal land. He will testify that some specimens that were purchased at a gem and mineral show in Arizona are consistent with Morrison Formation on federal land. He will also testify that the XRF data from specimens that have been heavily agatized cannot be used for determining the location where it was collected because the agatization process changes the mineral composition in such a way that the signature of the location is altered and that about 8% of the seized specimens could not be analyzed because of that. Dr. Polly will also testify that specimens identified by a cooperator to have come from sites on federal land at Ray Mesa, Hotel Mesa, and Black Ridge have XRF fingerprints that corroborate those locations. He will opine that by analyzing the XRF data he can provide a likelihood that several seized specimens assessed by paleontologist ReBecca Hunt-Foster originated from the Cleveland-Lloyd Dinosaur

Quarry or other sites around the Blue Hills area, the Burpee Quarry, and the areas surrounding the Burpee Quarry. Dr. Polly will offer testimony regarding XRF and REE results in comparison to the same specimens.

A more complete statement of Dr. Polly's expert opinions and the bases for those opinions are included in his report, attached as Ex. B.

The United States reserves the right to offer additional testimony by this expert, or other expert witnesses, and for the expert to amend or adjust his opinions and bases therefor, based on information perceived by or made known to the expert before or during trial.

Pursuant to [FED. R. CRIM. P. 16\(a\)\(1\)\(G\)\(v\)](#), Dr. Polly has reviewed this summary and filing, approved the filing, and allowed the filing to be electronically signed.

DATED this 15<sup>th</sup> day of August, 2024.

/s/ P. David Polly  
P. DAVID POLLY  
Professor, Indiana University Bloomington

TRINA A. HIGGINS  
United States Attorney

/s/ Melina Shiraldi  
MELINA SHIRALDI  
Assistant United States Attorney